

SEQUENCE LISTING

<110> Merck & Co., Inc.
 Uebele, Victor N.
 Connolly, Thomas M.

<120> NUCLEIC ACID MOLECULES ENCODING NOVEL
 MURINE LOW-VOLTAGE ACTIVATED CALCIUM CHANNEL PROTEINS
 DESIGNATED - a1H, ENCODED PROTEINS AND METHODS OF USE
 THEREOF

<130> 21314-PCT

<140> To be advised

<141> - -

<150> US 60/545,446

<151> 2004-02-18

<160> 6

<170> FastSEQ for Windows Version 4.0

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<212> DNA

<213> Rat

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50      55      60
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85      90      95
Val Cys Asn Pro Trp Phe Glu His Ile Ser Met Leu Val Ile Met Leu
100     105
Asn Cys Val Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Val Glu Cys
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<211> 2359

<212> PRT

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<400> 6

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      20      25      30
Pro Gly Ala Pro Gly Arg Glu Glu Gln Gly Gly Ser Gly Ser Gly Val
      35      40      45

Leu Ala Pro Glu Ser Pro Gly Thr Glu Cys Gly Ala Asp Leu Gly Ala
 50      55      60
Asp Glu Glu Gln Pro Val Pro Tyr Pro Ala Leu Ala Ala Thr Val Phe
 65      70      75      80
Phe Cys Leu Gly Gln Thr Thr Arg Pro Arg Ser Trp Cys Leu Arg Leu
      85      90      95
Val Cys Asn Pro Trp Phe Glu His Ile Ser Met Leu Val Ile Met Leu
      100      105      110
Asn Cys Val Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Val Glu Cys
      115      120      125
Arg Ser Glu Arg Cys Ser Ile Leu Glu Ala Phe Asp Asp Phe Ile Phe
      130      135      140
Ala Phe Phe Ala Val Glu Met Val Ile Lys Met Val Ala Leu Gly Leu
 145      150      155      160
Phe Gly Gln Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe
      165      170      175
Phe Ile Val Met Ala Gly Met Met Glu Tyr Ser Leu Asp Gly His Asn
      180      185      190
Val Ser Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Arg
      195      200      205
Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu
      210      215      220
Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Cys Phe Phe Val
 225      230      235      240
Phe Phe Ile Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu
      245      250      255
Arg Asn Arg Cys Phe Leu Asp Ser Ala Phe Val Arg Asn Asn Asn Leu
      260      265      270
Thr Phe Leu Arg Pro Tyr Tyr Gln Thr Glu Glu Gly Glu Glu Asn Pro
      275      280      285
Phe Ile Cys Ser Ser Arg Arg Asp Asn Gly Met Gln Lys Cys Ser His
      290      295      300
Ile Pro Ser Arg Arg Glu Leu Arg Val Gln Cys Thr Leu Gly Trp Glu
 305      310      315      320
Ala Tyr Gly Gln Pro Gln Ala Glu Asp Gly Gly Ala Gly Arg Asn Ala
      325      330      335
Cys Ile Asn Trp Asn Gln Tyr Tyr Asn Val Cys Arg Ser Gly Glu Phe
      340      345      350
Asn Pro His Asn Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp
      355      360      365
Ile Ala Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Asp Ile Met
      370      375      380
Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile
 385      390      395      400
Leu Leu Ile Ile Val Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val
      405      410      415

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Val	Ile	Ala	Thr	Gln	Phe	Ser	Glu	Thr	Lys	Gln	Arg	Glu	Asn	Gln	Leu	
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Met	Arg	Glu	Gln	Arg	Ala	Arg	Tyr	Leu	Ser	Asn	Asp	Ser	Thr	Leu	Ala	
		435					440					445				
Ser	Phe	Ser	Glu	Pro	Gly	Ser	Cys	Tyr	Glu	Glu	Leu	Leu	Lys	Tyr	Val	
	450					455					460					
Gly	His	Ile	Phe	Arg	Lys	Val	Lys	Arg	Arg	Ser	Leu	Arg	Leu	Tyr	Ala	
465					470					475					480	
Arg	Trp	Gln	Ser	Arg	Trp	Arg	Lys	Lys	Val	Asp	Pro	Ser	Ser	Thr	Val	
				485					490					495		
His	Gly	Gln	Gly	Pro	Gly	Arg	Arg	Pro	Arg	Arg	Ala	Gly	Arg	Arg	Thr	
			500					505					510			
Ala	Ser	Val	His	His	Leu	Val	Tyr	His	His	His	His	His	His	His	His	
		515					520					525				
His	Tyr	His	Phe	Ser	His	Gly	Gly	Pro	Arg	Arg	Pro	Ser	Pro	Glu	Pro	
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Gly	Ala	Gly	Asp	Asn	Arg	Leu	Val	Arg	Ala	Cys	Ala	Pro	Pro	Ser	Pro	
545					550					555					560	
Pro	Ser	Pro	Gly	His	Gly	Pro	Pro	Asp	Ser	Glu	Ser	Val	His	Ser	Ile	
				565					570					575		
Tyr	His	Ala	Asp	Cys	His	Val	Glu	Gly	Pro	Gln	Glu	Arg	Ala	Arg	Val	
			580					585						590		
Ala	His	Ser	Ile	Ala	Thr	Ala	Ala	Ser	Leu	Lys	Leu	Ala	Ser	Gly	Leu	
		595					600					605				
Gly	Thr	Met	Asn	Tyr	Pro	Thr	Ile	Leu	Pro	Ser	Gly	Thr	Val	Asn	Ser	
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Lys	Gly	Gly	Thr	Ser	Ser	Arg	Pro	Lys	Gly	Leu	Arg	Gly	Ala	Gly	Ala	
625					630					635					640	
Pro	Gly	Ala	Ala	Val	His	Ser	Pro	Leu	Ser	Leu	Gly	Ser	Pro	Arg	Pro	
				645					650					655		
Tyr	Glu	Lys	Ile	Gln	His	Val	Val	Gly	Glu	Gln	Gly	Leu	Gly	Arg	Ala	
			660					665					670			
Ser	Ser	His	Leu	Ser	Gly	Leu	Ser	Val	Pro	Cys	Pro	Leu	Pro	Ser	Pro	
		675					680					685				
Gln	Ala	Gly	Thr	Leu	Thr	Cys	Glu	Leu	Lys	Ser	Cys	Pro	Tyr	Cys	Ala	
	690					695					700					
Ser	Ala	Leu	Glu	Asp	Pro	Glu	Phe	Glu	Phe	Ser	Gly	Ser	Glu	Ser	Gly	
705					710					715					720	
Asp	Ser	Asp	Ala	His	Gly	Val	Tyr	Glu	Phe	Thr	Gln	Asp	Val	Arg	His	
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Gly	Asp	Cys	Arg	Asp	Pro	Val	Gln	Gln	Pro	His	Glu	Val	Gly	Thr	Pro	
			740					745					750			
Gly	His	Ser	Asn	Glu	Arg	Arg	Arg	Thr	Pro	Leu	Arg	Lys	Ala	Ser	Gln	
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Pro	Gly	Gly	Ile	Gly	His	Leu	Trp	Ala	Ser	Phe	Ser	Gly	Lys	Leu	Arg	
	770					775					780					
Arg	Ile	Val	Asp	Ser	Lys	Tyr	Phe	Asn	Arg	Gly	Ile	Met	Ala	Ala	Ile	
785					790					795					800	
Leu	Val	Asn	Thr	Leu	Ser	Met	Gly	Val	Glu	Tyr	His	Glu	Gln	Pro	Glu	
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Glu	Leu	Thr	Asn	Ala	Leu	Glu	Ile	Ser	Asn	Ile	Val	Phe	Thr	Ser	Met	
			820					825				830				
Phe	Ala	Leu	Glu	Met	Leu	Leu	Lys	Leu	Leu	Ala	Cys	Gly	Pro	Leu	Gly	
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Tyr Ile Arg Asn Pro Tyr Asn Ile Phe Asp Gly Ile Val Val Val Ile
850      855      860
Ser Val Trp Glu Ile Val Gly Gln Ala Asp Gly Gly Leu Ser Val Leu
865      870      875      880
Arg Thr Phe Arg Leu Leu Arg Val Leu Lys Leu Val Arg Phe Leu Pro
885      890      895
Ala Leu Arg Arg Gln Leu Val Val Leu Met Arg Thr Met Asp Asn Val
900      905      910

Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser Ile
915      920      925
Leu Gly Met His Leu Phe Gly Cys Lys Phe Ser Leu Lys Thr Asp Ser
930      935      940
Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
945      950      955      960
Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Val Val
965      970      975
Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
980      985      990
Val Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
995      1000      1005
Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Thr Arg Ser
1010      1015      1020
Asp Thr Asp Glu Asp Lys Thr Ser Thr Gln Leu Glu Gly Asp Phe Asp
1025      1030      1035      1040
Lys Leu Arg Asp Leu Arg Ala Thr Glu Met Lys Met Tyr Ser Leu Ala
1045      1050      1055
Val Thr Pro Asn Gly His Leu Glu Gly Arg Gly Ser Leu Pro Pro Pro
1060      1065      1070
Leu Ile Thr His Thr Ala Ala Thr Pro Met Pro Thr Pro Lys Ser Ser
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Pro Asn Leu Asp Val Ala His Ala Leu Leu Asp Ser Arg Arg Ser Ser
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Ser Gly Ser Val Asp Pro Gln Leu Gly Asp Gln Lys Ser Leu Ala Ser
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1125      1130      1135
Ser Arg Arg Ser Ser Trp Asn Ser Leu Gly Arg Ala Pro Ser Leu Lys
1140      1145      1150
Arg Arg Ser Gln Cys Gly Glu Arg Glu Ser Leu Leu Ser Gly Glu Gly
1155      1160      1165
Lys Gly Ser Thr Asp Asp Glu Ala Glu Asp Ser Arg Pro Ser Thr Gly
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Thr His Pro Gly Ala Ser Pro Gly Pro Arg Ala Thr Pro Leu Arg Arg
1185      1190      1195      1200
Ala Glu Ser Leu Asp His Arg Ser Thr Leu Asp Leu Cys Pro Pro Arg
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Pro Ala Ala Leu Leu Pro Thr Lys Phe His Asp Cys Asn Gly Gln Met
1220      1225      1230
Val Ala Leu Pro Ser Glu Phe Phe Leu Arg Ile Asp Ser His Lys Glu
1235      1240      1245
Asp Ala Ala Glu Phe Asp Asp Asp Ile Glu Asp Ser Cys Cys Phe Arg
1250      1255      1260
Leu His Lys Val Leu Glu Pro Tyr Ala Pro Gln Trp Cys Arg Ser Arg
1265      1270      1275      1280

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Glu Ser Trp Ala Leu Tyr Leu Phe Pro Pro Gln Asn Arg Leu Arg Val
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 Ser Cys Gln Lys Val Ile Ala His Lys Met Phe Asp His Val Val Leu
 1300 1305 1310
 Val Phe Ile Phe Leu Asn Cys Ile Thr Ile Ala Leu Glu Arg Pro Asp
 1315 1320 1325
 Ile Asp Pro Gly Ser Thr Glu Arg Ala Phe Leu Ser Val Ser Asn Tyr
 1330 1335 1340

 Ile Phe Thr Ala Ile Phe Val Val Glu Met Met Val Lys Val Val Ala
 1345 1350 1355 1360
 Leu Gly Leu Leu Trp Gly Glu His Ala Tyr Leu Gln Ser Ser Trp Asn
 1365 1370 1375
 Val Leu Asp Gly Leu Leu Val Leu Val Ser Leu Val Asp Ile Ile Val
 1380 1385 1390
 Ala Met Ala Ser Ala Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val
 1395 1400 1405

 Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala
 1410 1415 1420
 Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Arg Pro
 1425 1430 1435 1440
 Ile Gly Asn Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly
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 Ile Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly
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 Thr Asp Thr Arg Asn Ile Thr Thr Lys Ala Glu Cys His Ala Ala His
 1475 1480 1485
 Tyr Arg Trp Val Arg Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala
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 Leu Met Ser Leu Phe Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile
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 Met Tyr Asp Gly Leu Asp Ala Val Gly Ile Asp Gln Gln Pro Val Gln
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 Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile
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 Phe His Lys Cys Arg Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg
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 Phe Val Phe Glu Ala Ala Leu Lys Leu Val Ala Phe Gly Phe Arg Arg
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 Phe Phe Lys Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu
 1685 1690 1695
 Ser Ile Met Gly Ile Ala Leu Glu Glu Ile Glu Met Asn Ala Ala Leu

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Pro	Asp	Tyr	Thr	Glu	Pro	Ala	Glu	Asn	Met	Ser	Thr	Ser	Gln	Ala	Ser
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Thr	Gly	Ala	Pro	Arg	Ser	Pro	Pro	Cys	Ser	Pro	Arg	Pro	Ala	Ser	Val
2050				2055				2060							
Arg	Thr	Arg	Lys	His	Thr	Phe	Gly	Gln	Arg	Cys	Ile	Ser	Ser	Arg	Pro
2065				2070				2075				2080			
Pro	Thr	Leu	Gly	Gly	Asp	Glu	Ala	Glu	Ala	Ala	Asp	Pro	Ala	Asp	Glu
2085				2090				2095							
Glu	Val	Ser	His	Ile	Thr	Ser	Ser	Ala	His	Pro	Trp	Pro	Ala	Thr	Glu
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Pro	His	Ser	Pro	Glu	Ala	Ser	Pro	Thr	Ala	Ser	Pro	Val	Lys	Gly	Thr
2115				2120				2125							

Met Gly Ser Gly Arg Asp Pro Arg Arg Phe Cys Ser Val Asp Ala Gln
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 Ser Phe Leu Asp Lys Pro Gly Arg Pro Asp Ala Gln Arg Trp Ser Ser
 2145 2150 2155 2160
 Val Glu Leu Asp Asn Gly Glu Ser His Leu Glu Ser Gly Glu Val Arg
 2165 2170 2175
 Gly Arg Ala Ser Glu Leu Glu Pro Ala Leu Gly Ser Arg Arg Lys Lys
 2180 2185 2190
 Lys Met Ser Pro Pro Cys Ile Ser Ile Glu Pro Pro Thr Glu Asp Glu
 2195 2200 2205

 Gly Ser Ser Arg Pro Pro Ala Ala Glu Gly Gly Asn Thr Thr Leu Arg
 2210 2215 2220
 Arg Arg Thr Pro Ser Cys Glu Ala Ala Leu His Arg Asp Cys Pro Glu
 2225 2230 2235 2240
 Pro Thr Glu Gly Pro Gly Thr Gly Gly Asp Pro Val Ala Lys Gly Glu
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 Arg Trp Gly Gln Ala Ser Cys Arg Ala Glu His Leu Thr Val Pro Asn
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 Thr Pro Leu Lys Lys Pro Gly Ser Thr Pro Ala Thr Pro Ala Pro Asp
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 Asp Ser Gly Asp Glu Pro Val
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